UNIMAX software

Unirex, the power broker.

The powerful hardware requires equally strong software for the UNIMAX to perform at its maximum. Unirex is the operating system designed for the UNIMAX. It is a multi-user, multi-tasking, multi-processing operating system which supports concurrent operation of up to eight MC68000 CPUs. Its job is to channel and coordinate the power and flexibility of the UNIMAX in order to benefit both users and developers.

Unirex is designed as a real-time system, using the experience we obtained from several thousand installations of its smaller, real-time predecessor, MIKADOS. Unirex controls and allocates system resources for the processes operating on the multiple CPUs. The synchronization and reservation problems implicit in all real-time systems are handled by Unirex in a manner totally transparent to its users.

Unirex supports a wide selection of languages, including Pascal, C, Cobol, Fortran, and Basic. These languages are implemented to give the systems developer the best and easiest method of getting the ultimate product, the solution, to market.

Unirex: Portability, but not at any price.

Unirex is constructed so that program compatibility with UNIX Vers. 7 is guaranteed at C source code level. This assures that existing software is implemented easily on the UNIMAX. Unirex, though, is a run-time system; the user-interface is easy, consistent, and polished. Documentation is written for the user, and not just the developer.

In other words, we have retained compatibility in order to ensure portability. Where we can improve, we have.

- Unirex supports sharing of program code, which gives economical memory use. Data can be kept separately by the MMU to ensure rapid program execution.
- Unirex takes the »pipe« concept and enhances it to be our »box«. Pipes work on disk, boxes in main memory. They are thus faster and more flexible.
- File handling systems are independent of Unirex. Unirex can support more than one kind of file handling system at a time.
- Unirex is self-configuring.
- A maximum of 14 MB instruction and memory space available per process.

Unirex - the complete real-time operating system.

Most operating systems for »super-micros« and minicomputers are designed for multi-user operation. Real-time operations are supported to the degree they fit into the general time sharing implementation. Unirex is designed for real-time applications. Interactive time sharing is thus a result of the real-time environment, and not just a coincidental by-product.

Unirex features, among other things:

- Dynamic allocation/reservation of all systems resources.
- Sharing of instruction and data space between several processes for efficient and rapid memory use.
- Dynamic I/O buffer lengths optimalize disk performance.
- User-definable terminal/printer characteristics.
- Character and/or block terminal I/O mode.
- Priority scheduling with time sharing between equal priority processes.
- Process protection.
- Supports the MIKADOS file handling system from DDE's previous products, assuring that software is upward-transportable from these systems.

Unirex - data communication.

The UNIMAX, through its intelligent I/O controllers, supports a broad range of data communications applications. Most of the communications protocols are executed directly by the SIOC, thus further unloading the main CPU(s). The following protocols are now available:

- Bisynchronous: IBM 2780/3780. IBM JES2. IBM 3270. Siemens MSV1. CDC UT-200.
- SDLC: IBM 3270 SNA.
- Asynchronous: TTY emulation.